WHAT IS CLAIMED IS:

1. A gas-supplying apparatus in a fuel cell comprising a compressor which sucks a supply gas to be supplied to a fuel cell from downstream of said fuel cell, and which compresses an exhaust gas, generated from said supply gas by power generation in the fuel cell, exhausted from the fuel cell, and a heat exchanger which performs heat exchange between said supply gas and said exhaust gas.

2. The gas-supplying apparatus in a fuel cell as claimed in Claim 1, further possessing a controller, which controls the pressure of the exhaust gas to be incorporated into the heat exchanger.

3. The gas-supplying apparatus in a fuel cell as claimed in Claim 2, wherein said controller is controlled depending upon the temperature of the supply gas.

4. The gas-supplying apparatus in a fuel cell as claimed in Claim 3, wherein said controller is controlled in such a manner that the temperature of the supply gas becomes a demand temperature.

5. The gas-supplying apparatus in a fuel cell as claimed in Claim 4, wherein the pressure of the exhaust gas to be introduced into the heat exchanger is controlled through the controller so as to be increased when the temperature of the supply gas is lower than the demand temperature.

6. The gas-supplying apparatus in a fuel cell as claimed in Claim 4, wherein said exhaust gas to be introduced into the heat exchanger is controlled through the controller so as to be decreased when the temperature of the supply gas is higher than the demand temperature.

7. The gas-supplying apparatus in a fuel cell as claimed in Claim 2,wherein said controller is a control valve, which controls the pressure of the exhaust gas to be incorporated into the heat exchanger.

8. The gas-supplying apparatus in a fuel cell as claimed in Claim 1, wherein said heat exchanger comprises a water-permeable membrane type humidifier which humidifies the supply gas with the water contained in the exhaust gas.

9. The gas-supplying apparatus in a fuel cell as claimed in Claim 8, further possessing a controller, which controls the pressure of the exhaust gas to be incorporated into the heat exchanger.

10. The gas-supplying apparatus in a fuel cell as claimed in Claim 9, wherein said controller is controlled depending upon the humidity of the supply gas.

11. The gas-supplying apparatus in a fuel cell as claimed in Claim 10, wherein said controller is controlled in such a manner that the humidity of the supply gas becomes target humidity.

12. A gas-supplying apparatus in a fuel cell having a heat exchanger which performs heat exchange between a supply gas and an exhaust gas, generated from said supply gas by power generation in the fuel cell, exhausted from the fuel cell, to transmit the heat from said exhaust gas to the supply gas,
said gas-supplying apparatus further possessing a temperature controller which controls the temperature of the exhaust gas to be introduced into said heat exchanger.

13. A process for controlling a temperature of a supply gas to be supplied to a fuel cell which comprises:
introducing said supply gas into a heat exchanger and, at the same time, introducing an exhaust gas discharged from the fuel cell into said heat exchanger to perform heat exchange between the supply gas and the exhaust gas.

14. The process for controlling a temperature of a supply gas to be supplied to a fuel cell as claimed in Claim 13, wherein the temperature of said exhaust gas is controlled before it is introduced into said heat exchanger.

15. The process for controlling a temperature of a supply gas to be supplied to a fuel cell as claimed in Claim 14, wherein the temperature of said exhaust gas is controlled by compressing said exhaust gas.

16. The process for controlling a temperature of a supply gas to be supplied to a fuel cell as claimed in Claim 14, wherein the temperature of said exhaust gas is controlled by adjusting the flow amount of the exhaust gas to be introduced into said heat exchanger.